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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER	
KITOV, ZEEV V	

ART UNIT	PAPER NUMBER
2836	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/522,906	MCLEOD ET AL.	
	Examiner	Art Unit	
	ZEEV KITOV	2836	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *13 August 2008*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1 - 12* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1 - 12* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Examiner acknowledges a submission of the amendment and arguments filed on August 13, 2008. Claims 1, 7, 11 and 12 are amended. A new Office Action follows.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1 – 5, 11 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Norton et al. (US 4,808,115) in view of Olsson (US 5,949,300) and Fayfield (US 5,644,730). Regarding Claims 1, and 11, Norton et al. disclose a housing of a module (12 in Fig. 1 and 12 in Fig. 3) and connectors (16, 18 in Fig. 1 and 50 in Fig. 3) to the housing (col. 8, line 43 to col. 9, line 44); the connectors (16, 18 in Fig. 1, 50 in Fig. 3) are configured to be coupled to the mother 33circuit card (20 in Fig. 1 and 3, col. 6, line 63 – col. 7, line 14). The connectors (16 in Fig. 1, 50 in Fig. 3) are disposed exterior to the housing (col. 1, lines 14 – 42). Pins of connectors are extended outwardly from the housing (62 in Fig. 3, 4). The connectors being configured to inherently engage at least some sockets of the socket card (20 in Fig. 1, 3), since it is what the connector is used for.

However, it does not disclose an isolation circuitry within the housing. Olsson discloses the isolation circuitry, such as isolation transformers (25, 27 in Fig. 1) located within the housing (41 in Fig. 1). Olsson also discloses his isolation means being located inside the shielded housing (41 in Fig. 1). The reference is pertinent to the case since it deals with the communication bus wiring connections and particularly discloses isolation of the bus elements. Modification of Norton et al. apparatus according to teachings of Olsson will bring benefits of providing a galvanic DC isolation between the circuit card and peripheral devices and between different peripheral devices interconnected through the circuit card. Such modification will not bring any unusual or unexpected result. Such modification, i.e. use of isolation transformer, was recognized as part of the ordinary capabilities of one skilled in the art as evidenced by numerous US and international patents and textbooks on the subject. Therefore, it would be obvious to one of ordinary skill in the art at the time the invention was made to have add the isolation transformers of Olsson to the housing of Norton et al., because (a) it provides a DC galvanic isolation and prevents short-circuiting between the peripheral devices and the circuit card and between different peripheral devices connected together through the circuit card; (b) such isolation is required by MIL-STD-1553 standard and since the Norton system is intended for use in aviation industry (col. 1, lines 14 – 42) the requirements of this standard are to be met, otherwise the manufacturer will not be able to sell his substandard equipment and (c) such isolation is unavoidable when a communication line is a power line. In the Norton et al. system modified according to teachings of Olsson the isolation transformer is located inside the

housing since (a) the Olsson transformer is located in the shielded housing (see Olsson Abstract) and (b) according to Norton et al. (see Abstract), a metal shroud of the LRM connector provides EMI shielding. Therefore, there are sufficient preconditions for placing the shielded transformer of Olsson inside the LRM module thus combining two teachings of shielding together. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to set the shielded transformer of Olsson inside the replaceable module of Norton et al. because in such case a substantial saving of space, cost and material will be achieved.

In the Norton system modified according to teachings of Olsson, the bus and the circuit card are disposed exterior of the housing (see Norton, the circuit card 20 connected to the bus is disposed exterior to the housing of the module 12).

As to a second plurality of connections extending outwardly from the module housing and being coupled to the device, Olsson discloses connection of plural channels through their own transformers to the same bus (second transformer (41 on right side) being connected to the same bus (13 in Fig. 1). Such connection inherently requires the second set of the connectors (pins) extending outwardly from the same module housing.

Additionally Norton does not disclose the network bus coupler coupling a bus to a device connected to the circuit card. Fayfield discloses the network bus coupler (shown in Fig. 4) coupling a bus (110 in Fig. 4) to a device (102 in Fig. 4) connected to the circuit card through junction box (108 in Fig. 4, col. 5, lines 30 - 58). Applying the Norton LRM design modified according to teachings of Olsson for coupling a bus to a

device according to teachings of Fayfield will be advantageous for manufacturer of the Norton system because it will provide them with a new application thus expanding their market share.

As well known, at least in this country, the Engineering solutions and inventions are created mostly in private companies, which ultimate goal is to maximize their profits. And as also well known, to achieve this goal the private companies need to expand their market share as much as possible. Therefore, when the company gets a new technical solution protected by the patent (such as Norton and Olsson patents), the salesmen of the company will begin attempting to sell the licenses to every interested side including manufacturers of the Fayfield equipment. Such activity in a case of success would ultimately expand the sales of the patented product and the company's profits. As stated in the Supreme Court Decision *KSR International Co. vs. Teleflex, Inc*. decision (No. 04-1350, slip opinion): "When a work is available in one field of endeavor, design incentives and other market forces can prompt variations of it, either in the same field or a different one". It is clear that the market forces, i.e. marketing considerations play significant if not decisive role in today's Engineering Design.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to apply the Norton LRM design modified according to teachings of Olsson for implementing the bus coupler of Fayfield, because it will provide additional applications for the manufacturer of Norton system thus expanding its market share.

Regarding Claim 2, the connectors of Norton et al. (see Fig. 3) have a plurality of pins (562, 54 in Fig. 3).

Regarding Claim 3, the recited connector pins are adapted for insertion into their mating pair (160 in Fig. 3),

Regarding Claim 4, Norton et al. disclose the female connectors (160 in Fig. 3) at the bottom of the circuit card (mother-board in Fig. 3), having the receptive sockets for insertion of pins of the male connector of functional modules (52, 54 in Fig. 3).

Regarding Claim 5, Olsson discloses the isolation element as the isolation transformer (25, 27 in Fig.1). A motivation for modification of the primary reference is the same as above.

Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Brodsky (US 4,833, 600) in view of Olsson (US 5,949,300). As per Claim 12, it differs from Claim 11 rejected above by use of an exclusive term “consisting”. Regarding Claim 12, Brodsky discloses the isolation circuitry, i.e. transformer (90 in Fig. 2, col. 8, lines 25 - 39) electrically coupled to INCOM coupling circuit (22 in Fig. 2), which is located on a circuit board or card CONICARD, which in turn is plugged into IBM processor bus (col. 6, lines 10 – 28). Therefore, the CONICARD represents a network bus coupler configured to couple a communication bus to a device, i.e. IBM processor, which is connected to the CONICARD through its own IBM processor bus. However, Brodsky does not disclose the transformer housing. Olsson discloses a housing (41 in Fig. 1) configured to house an electrical isolation circuitry, i.e. transformers. It further discloses data bus connectors disposed exterior to the housing and being electrically coupled to the isolation circuitry, connectors are to be coupled to the data bus. As to connecting the transformer to the

CONICARD through the connector, since the Olsson system already has connectors for connection to the bus so in the modified circuit the transformer is connected to the card through the connector. It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the Brodsky isolation transformer by providing them with a shielding and accordingly with the housing because transformer shielding is necessary due to variety of reasons such as (a) preventing interference between the input and output data streams, (b) preventing EMI problem, and (c) preventing the transformer stray magnetic fields from affecting other adjacent parts located in vicinity.

Claims 7, 8 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Norton et al. in view of Olsson. Regarding Claim 7, Norton et al. disclose following elements of the claim: a modular interconnection structure shown in Fig. 3, the circuit card (20 in Fig. 1 and 3) including plurality of sockets in female connectors (Fig. 3), the modular bus network having a bus coupler (LRM in Fig. 1 and 3) coupled to the circuit card through connectors (16 in Fig. 1 and 50 in Fig. 3). It further discloses plurality of modules having housing (12 in Fig. 1 and 22, 24 in Fig. 2) having a plurality of pins (shown in Fig. 3) disposed exterior of their housing, which are engageable with some of the sockets of connectors (160 in Fig. 3) of the circuit card/mother board (20 in Fig. 1 and 3). The network bus coupler (LRM) is coupling the bus to the device, i.e. the transmitter (optical driver) and the receiver, which inherently present in the system and are connected to the circuit card, since otherwise the optical communication system of the reference is not able to function.

As to a junction box of the claim, according to The Authoritative Dictionary of IEEE Standard Terms (7th Ed.), the junction box is an enclosed distribution panel for connecting or branching one or more corresponding electric circuits without the use of permanent splices. Norton et al. disclose the apparatus having a distribution panel, i.e. circuit board (20 in Fig. 1 and 3) used for connecting one or more corresponding electrical circuits without use of permanent splices. The Norton et al. interconnection system is inherently enclosed, since leaving this equipment without proper housing in the aviation industry environment would be in violation of existing standards. An example of such enclosure is shown in Fig. 1 of Norton et al. showing an enclosure housing the LRM module.

However, Norton et al. does not disclose an isolation circuitry, which is disclosed by Olsson (isolation transformer (25, 27 in Fig. 1). It would be obvious to one of ordinary skill in the art at the time the invention was made to have added the isolation transformers of Olsson to the system of Norton et al., because (a) both Norton and Olsson references deal with avionic systems, and (b) according to Olsson (col. 1, lines 14 - 30), such isolation is required by MIL-STD-1553 standard and since the Norton system is intended for use in aviation industry (col. 1, lines 14 – 42) the requirements of this standard are to be met, otherwise the manufacturer will not be able to sell his substandard equipment. Such modification, i.e. use of transformers for providing DC galvanic isolation was recognized as part of the ordinary capabilities of one skilled in the art.

Regarding Claim 8, Olsson discloses the isolation transformers (see above).

Regarding Claim 10, Olsson discloses an aviation component, since MIL-SRD-1553 standard is the standard specific for an aircraft.

Claims 6 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Norton et al. in view of Olsson, Fayfield and Shaffer (US 5,841,778). Regarding Claim 6, Norton et al. disclose the connectors disposed exterior of the module housing (see Fig. 3). Shaffer discloses a bus terminator (elements 110 and 160 in Fig. 1); the terminators are inherently disposed in the housing and electrically coupled to a connector. In the Norton system modified according to teachings of Shaffer, the terminators are inherently disposed in the housing and connected to the connectors leading to the communication cables, i.e. located outside the housing. The terminators are to be set inside the housing because setting them outside the housing would require increase in the connections length, which is detrimental for communication at such high frequencies as used in systems like the Norton system. The terminators are inherently connected to the connector since the communication channel is connected to the device (receiver and transmitter) through the connector and the terminator is a connected to the communication channel. It would be obvious to one of ordinary skill in the art at the time the invention was made to have added the terminator elements according to Shaffer to the Norton et al. system, because as well known in the art, it would prevent the signals reflections from the ends. Use of terminations for prevention of signals reflection in the electrical lines was recognized as part of the ordinary capabilities of one skilled in the art.

Regarding Claim 9, Shaffer discloses a bus terminator (elements 110 and 160 in Fig. 1) disposed in the housing and electrically coupled to a connector. A motivation for modificatin of the primary reference is the same as above.

Response to Arguments

Applicant's arguments have been fully considered but they are not persuasive. Applicant consistently argues amended versions of the claims comparing them to the previous Office Action, which could not possibly anticipate the Applicant's future amendments (page 6, 1st and 2nd paragraphs, page 7, 2nd paragraph, page 9, 1st paragraph). The instant Office Action addresses all the limitations of the claims. As to Applicant's criticism of the Claim 6 rejection using inherency concept, it is also addressed in the instant Office Action. Therefore, it is believed that all Applicant's Arguments are addressed in the instant Office Action.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Zeev Kitov whose current telephone number is (571) 272 - 2052. The examiner can normally be reached on 8:00 – 4:30. If attempts to reach examiner by telephone are unsuccessful, the examiner's supervisor, Michael Sherry, can be reached on (571) 272 – 2800, Ext. 36. The fax phone number for organization

where this application or proceedings is assigned is (571) 273-8300 for all communications.

/Michael J Sherry/

Supervisory Patent Examiner, Art Unit 2836

/Z. K./
Examiner, Art Unit 2836
10/2/2008